

## Calculated Case Status – Reference Guide

Version 1.0, December 1999

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## Summary: Calculated Case Status

### **Definitions**

System-generated determination of the level of certainty regarding whether a person has a disease/condition.

### **Data Storage and Field Values**

There is 1 data element used to define the data concept Calculated Case Status. Note that the case status is a relevant concept that may be applied to various diseases or conditions of interest to public health.

Variable Name:	<i>Assigned based on the associated disease/condition</i>
Type:	character
Length:	1
Reported to CDC:	Yes
Field Values:	1 – Confirmed
	2 – Probable
	3 – Suspect
	4 – Exposed
	5 – At Risk
	6 – Not a Case

**Missing Values**

If the value of the Calculated Case Status data element is missing, or does not adhere to the CIPHER standard, the data element is noted as blank to indicate a missing value. If the program requires the reason the value is missing, a separate 1-character Missing Value Reason (MVR) field should be used to note the reason for the missing data. The MVR value is calculated by the Calculated Case Status algorithm and denotes the reason the defined procedure/algorithm failed to derive a value based on the input parameters. That is, the MVR data associated with the calculated case status data element is also calculated.

The use of a Missing Value Reason data element must adhere to the CIPHER definition and rules associated with missing data as described in Appendix I - Missing Value Reason.

**Processing Overview**

Special requirements apply. Refer to the Implementation subsection on Data Processing: Validations and Edit Checks, below, for detailed information.

**EDI Summary**

Note: EDI sections are under construction.

**Discussion**

Calculated Case Status provides summary information about the level of certainty regarding whether specific characteristics (i.e., clinical observations, laboratory data, and epidemiologic links) indicate the presence of a given disease or condition. The Calculated Case Status is system-generated and is determined by a series of pre-coded algorithms supported within a program's software. That is, the case status is calculated based on system algorithms that consider and evaluate a number of relevant data elements that contain clinical, laboratory, and epidemiologic information. These Calculated Case Status algorithms vary by condition or disease, and can be quite complex.

The responsibility for development and maintenance of these algorithms falls within the individual disease-specific program area. The algorithms are based on formal case definitions developed in collaboration with the epidemiologists at CDC and the Council of State and Territorial Epidemiologists (CSTE), and endorsed for use by the Association of Public Health Laboratories (APHL). These formal case definitions are collectively

published in the MMWR 1997:46(No. RR-10), and are also available on the internet. Refer to <http://www.cdc.gov/epo/dphsi/casedef/intro97.htm> .

The classification of case status is influenced by a number of data elements, as enumerated above. Official and accurate case status data can only be derived in the presence of all required data elements. While related concepts, the Calculated Case Status data concept is unlike the Stated Case Status data concept which is user-defined. That is, the Stated Case Status is determined by a user, based on his or her evaluation of a combination of factors including clinical, laboratory, and epidemiologic information. Unlike the system-generated Calculated Case Status, which is calculated based on algorithms that support the formal case definitions, the Stated Case Status is entered directly by the user, and is based on the epidemiologic judgment of an epidemiologist or health officer. Therefore, it is possible to have a Calculated Case Status which differs from the Stated Case Status. Refer to the Stated Case Status section for more information on the user-determined case status.

Depending on the particular condition or disease, it may be appropriate to support only a subset of the field values noted above. That is, all of the “levels” of case status (*At Risk; Exposed; Suspect; Probable; Confirmed; Not a Case*) may not apply to a particular condition or disease. Therefore, it is appropriate for a program to support Calculated Case Status algorithms that cover only applicable categories.

## Implementation: Calculated Case Status

The implementation examples noted below use generic field labels and variable names to demonstrate the Calculated Case Status data concept. The implementation for a specific use of Calculated Case Status can be patterned after these generic implementation examples.

### **Data Collection: Hardcopy Report Form**

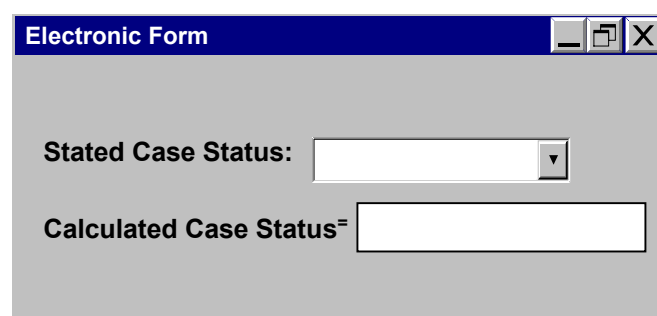
This section is not applicable. The Calculated Case Status is a system-generated field, and is not noted on, or collected through a hardcopy report form.

### **Data Entry: Electronic Forms**

The calculated field, Calculated Case Status, is displayed upon entry/update of data which are used by pre-coded "Calculated Case Status algorithms" supported within a program's software. That is, the Calculated Case Status is calculated based on disease-specific program algorithms that consider and evaluate a number of relevant data elements that contain clinical, laboratory, and epidemiologic information. Thus, the Calculated Case Status is displayed upon entry/updated of those data elements that are used within the program-supported algorithm. Because the value of the Calculated Case Status data element is calculated, the Calculated Case Status is a display-only field, which the entry operator cannot access or modify. The field is displayed in a box, labeled "Calculated Case Status=".

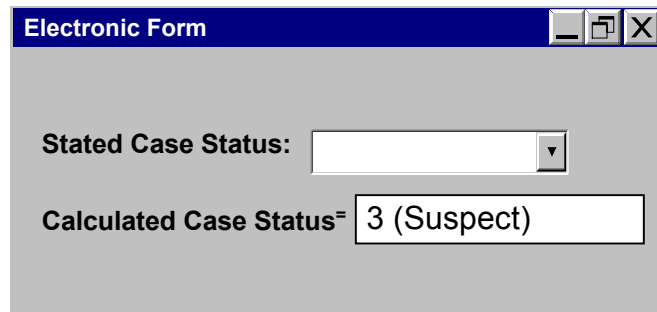
Because the Calculated Case Status is categorically related to the Stated Case Status, the following illustrations contain fields that define the Stated Case Status data concept as well as the Calculated Case Status data concept.

**Figure 1:** **Blank Electronic Form including Calculated Case Status**



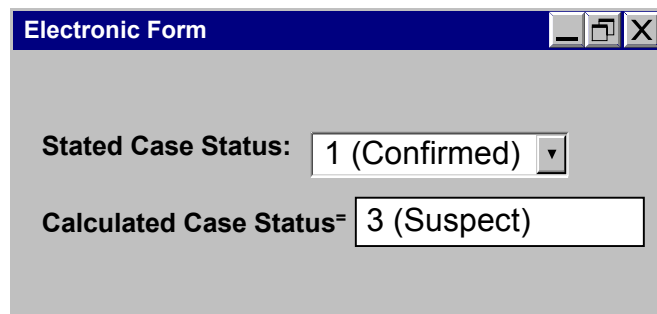
The image shows a window titled "Electronic Form" with a blue header bar. Inside the window, there are two labels and corresponding input fields. The first label is "Stated Case Status:" followed by a white rectangular dropdown menu with a small downward arrow on its right side. The second label is "Calculated Case Status=" followed by a white rectangular text input box. The background of the form is light gray.

**Figure 2:** Electronic Form noting a Calculated Case Status value dictated by previously entered data elements, where the user has not yet entered a Stated Case Status value



The screenshot shows a window titled "Electronic Form" with a blue header bar. Inside the window, there are two labels: "Stated Case Status:" and "Calculated Case Status=". The "Stated Case Status:" label is followed by a dropdown menu that is currently empty. The "Calculated Case Status=" label is followed by a text box containing the value "3 (Suspect)".

**Figure 3:** Completed Electronic Form- Calculated Case Status value dictated by previously entered data elements, where the user has entered a Stated Case Status value (Confirmed) which does not agree with the Calculated Case Status value (Suspect)



The screenshot shows a window titled "Electronic Form" with a blue header bar. Inside the window, there are two labels: "Stated Case Status:" and "Calculated Case Status=". The "Stated Case Status:" label is followed by a dropdown menu that now contains the value "1 (Confirmed)". The "Calculated Case Status=" label is followed by a text box containing the value "3 (Suspect)".

**Missing Values – Electronic Form**

If the value of the Calculated Case Status data element is missing, or does not adhere to the CIPHER standard, the data element is noted as blank to indicate a missing value. If the program requires the reason the value is missing, a separate 1-character Missing Value Reason (MVR) field should be used to note the reason for the missing data. The MVR value is calculated by the Calculated Case Status algorithm and denotes the reason the defined procedure/algorithm failed to derive a value based on the input parameters. That is, the MVR data associated with the calculated case status data element is also calculated.

The use of a Missing Value Reason data element must adhere to the CIPHER definition and rules associated with missing data as described in Appendix I - Missing Value Reason.

**Data Processing: Validations and Edit Checks**

Refer to MMWR 1997:46(No. RR-10) for details on the formal case definition for a particular condition/disease. These formal case definitions are also available on the internet. Refer to <http://www.cdc.gov/epo/dphsi/casedef/intro97.htm>. The formal case definitions were developed in collaboration with the epidemiologists at CDC and the Council of State and Territorial Epidemiologists (CSTE), and endorsed for use by the Association of Public Health Laboratories (APHL). Please note that the responsibility for development and maintenance of computer algorithms supporting the above noted case definitions falls within the individual disease-specific program areas.

The classification of case status is influenced by a number of data elements, as enumerated above. Official and accurate case status data can only be derived in the presence of all required data elements.

**Data Processing: From Calculation to Storage**

The calculated field, Calculated Case Status, is displayed upon entry/update of data which are used by pre-coded algorithms supported within a program's software for the purposes of calculating the Calculated Case Status. The figure below illustrates how the Calculated Case Status data are stored in the database. In this example, the value of the Stated Case Status and the value of the Calculated Case Status differ.

The screenshot shows a window titled "Electronic Form". It contains two input fields: "Stated Case Status" with a dropdown menu showing "1 (Confirmed)", and "Calculated Case Status" with a text box containing "3 (Suspect)". A curved arrow points from the "Calculated Case Status" field to a database storage summary box. The summary box is titled "Database Storage" and contains two sections: "Stated Case Status" and "Calculated Case Status". Each section lists the field's type, length, and stored value.

Database Storage	
<b>Stated Case Status</b>	
Type:	character
Length:	1
Stored Value:	1
<b>Calculated Case Status</b>	
Type:	character
Length:	1
Stored Value:	3

### Data Transmission: Electronic Data Interchange

Note: EDI sections are under construction.